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(54) **PROVIDING ASSIST TORQUE WITHOUT HAND WHEEL TORQUE SENSOR FOR ZERO TO LOW VEHICLE SPEEDS**

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See application file for complete search history.

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(57) **ABSTRACT**

A method of controlling an electric power steering system of a vehicle is provided. The method estimates steering rack force to be caused by a tire of the vehicle and a surface of a ground with which the tire is in contact in response to determining that one or more hand wheel torque sensors of the vehicle are not enabled. The method generates a steering assist torque command based on the estimated steering rack force. The method controls the electric power steering system using the steering assist torque command.

18 Claims, 6 Drawing Sheets